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## ANNEX 5 - EXECUTIVE INFORMATION SYSTEM "EIS"

### EIS- VISION

#### 1- EIS Vision

The EIS will act as the single, central information system, providing reliable data for executives and decision makers in the water sector. The system will extract data from multiple systems, and provide aggregated information for decision makers.

#### 2- EIS Information Requirements

The following were identified as the top priority information requirements for executives, and senior-level management at the water sector. The list is ordered according to information priority.

|                                      |                                       |
|--------------------------------------|---------------------------------------|
| <b>1. Water Situation</b>            | <b>2. Capital Investment</b>          |
| <b>3. Projects Performance</b>       | <b>4. Finance</b>                     |
| <b>5. Administrative &amp; Legal</b> | <b>6. Operation &amp; Maintenance</b> |

## 2-1 Water Situation

The most critical information required by executives and decision makers across water sector departments, is the water situation. The water situation is assessed based on the following components:

1. Water Resources
2. Water Supply
3. Water Demand
4. Water Balance

| Information Need                           | Information Need Detail  | Frequency  | Current Issues<br>(Timeliness, Quality, Availability)  | Possible Data Sources -<br>MWI   | Possible Data Sources -<br>NGWA | Possible Data Sources -<br>JVA | PMU Coverage | PMU KPIs | GTZ -SCWS   |
|--|--|--|--|--|---------------------------------|--------------------------------|--------------|----------|---|
| Water Budget<br>(Historical & Projections) | 1. Water Resources<br>(past & future)                          | Available Monthly and consolidated Annually/<br><br><u>For JVA</u><br><br>Daily for main resources, monthly reports & annual reports | <u>Historical Data:</u> Information is available in paper forms, and not available digitally until 3-6 months after water year ends.<br><u>Projections:</u> Timely. Available in Digital format for dry, median and wet years...<br><br><u>For JVA</u><br><br>On-line SCADA  | <u>Historical Data:</u> Water Resources Directorate, and WIS.<br><u>Projected Data:</u> NWMP and WIS   | BMFO                            | WMIS                           | √            | WR01     | PMU is not an original data source, they receive data through parallel processes to the authorized BMFO-WIS process |
|  | 2. Water Demand<br>(past & future) including irrigation areas. | Annual<br><br><u>For JVA</u><br><br>Daily for major consumers, monthly & annual reports.   | <u>Historical Data:</u><br>1) Irrigation Demand needs a) Regular Exchange of Information on irrigated areas with MOA and JVA. Data exchanged in MOA is in paper form. JVA electronic data in WMIS is incompatible with WIS... Data entry and processing for conversion into WIS is time consuming.<br>b) Regular processing of climatic data which is not available.<br><br><u>Projected Data:</u> Time consuming. Can | <u>Historical Data:</u><br>Irrigation areas in MOA and JVA & Ultimately WIS, and processed climatic data from WRD.<br><br><u>Projected Data:</u> Currently NWMP. Updating of NWMP requires input & information exchange with other ministries. | Excel                           | WMIS                           | ×            |          |   |

| Information Need | Information Need Detail                                      | Frequency  | Current Issues<br>(Timeliness, Quality, Availability)  | Possible Data Sources -<br>MWI   | Possible Data<br>Sources -<br>NGWA | Possible Data<br>Sources -<br>JVA | PMU<br>Coverage | PMU<br>KPIs | GTZ -SCWS  |
|------------------|--|--|--|--|------------------------------------|-----------------------------------|-----------------|-------------|--|
|                  |  |  | only be available in 5 years span.   |  |                                    |                                   |                 |             |  |
|                  | 3. Water Uses <sup>1</sup> /Supply By Sector (past & future) | <p><b>Historical</b><br/>Available Monthly and consolidated Annually.</p> <p><b>Projections:</b><br/>Annual in 5 years span</p> <p><b>For JVA</b><br/>Daily, Monthly reports and consolidated annually</p> | <p><b>Historical Data:</b> Information is available in paper forms until 3-6 months after water year ends. Available digitally for GW uses only within WIS. Remaining info is in excel sheets and not reliable in some cases.</p> <p><b>Projections:</b> Timely. Available in Digital format</p> | <p><b>Historical:</b> Water Resources Directorate, and WIS.</p> <p><b>Projections:</b> NWMP Module</p> | Excel                              | WMIS                              | √ ×             | WR01        |  |
|                  | 4. Water Deficit (Past & Future)                             | <p><b>Historical</b><br/>Consolidated Annually.</p> <p><b>Projections:</b><br/>Annual in 5 years span</p> <p><b>For JVA</b><br/>Monthly and consolidated annually</p>                                      |  | Processed Information from Above   | Excel                              | WMIS                              | ×               |             |  |
| Water Transfer   | 1. Water Transfer (Export & Import By                        | <p><b>Historical</b><br/>Consolidated</p>  | Historical data is not available digitally. Invalid approach to transfer calculations in source files. This results in data  | <p><b>Historical:</b> WAJ O&amp;M</p> <p><b>Projections:</b> NWMP</p>                                  | Excel                              |                                   | √               | WR01        | Not to my knowledge, please check if they use WAJ data |

<sup>1</sup> Domestic, irrigation, industry, tourism

| Information Need                           | Information Need Detail   | Frequency  | Current Issues<br>(Timeliness, Quality, Availability)  | Possible Data Sources -<br>MWI  | Possible Data Sources -<br>NGWA | Possible Data Sources -<br>JVA | PMU Coverage | PMU KPIs | GTZ -SCWS |
|--|---|--|--|---|---------------------------------|--------------------------------|--------------|----------|-----------|
|  | Governorate)  | Annually.<br><b>Projections:</b><br>Annual in 5 years span | incompatibility with projected transfers.  | Module  |                                 |                                |              |          |           |
| <b>Population</b>                          | 1. Historical & Projected Population & Growth Rate (By Governorate) | Annual   | <b>Historical:</b> Exchange with DOS is Time consuming.<br><b>Projections:</b> Discrepancies between tables with DOS.  | <b>Historical:</b> DOS – NWMP (WIS)<br><b>Projections:</b> DOS- NWMP(WIS) | Excel                           |                                | ×            |          |           |
| <b>Municipal Consumption</b>               | 1. Historical L/C/D consumption By governorate                      | Monthly and Annual   |  | Processed Information from population and Water Billed & Supplied         | Excel                           |                                | √            | WRc01    |           |
|  | 2. Projected L/C/D consumption By Governorate -                     | Annual   |  | Processed Information from population and projected Allocations           | Excel                           |                                | ×            |          |           |
| <b>Non Revenue Water (NRW)<sup>2</sup></b> | 1. Water Billed and. Water Supply By Governorate - Utility          | Available Monthly and consolidated Annually                | 1) Billed Water: Data incompatibility, Loss of data during digital conversion.<br>2) Water Supply: : Information is available in paper forms, and not available digitally until 3-6 months after water year ends | WAJ (Water Billing System), and PMU for other operators, WRD and WIS.     |                                 |                                | √            | Fi36     |           |
|  | 2. Historical NRW by Governorate                                    |  | Processed from Above   |   | COBOSII, BMFO, Excel            |                                | √            | Fi36     |           |
|  | 3. Projected NRW by Governorate                                     | Annual Update required                                     | Lack of centralized data availability. Information on rehabilitation projects are  | WAJ, PMU and NWMP   | COBOSII, BMFO,                  |                                | √            | Fi36     |           |

<sup>2</sup> Move before Municipal Consumption

| Information Need                            | Information Need Detail  | Frequency   | Current Issues<br>(Timeliness, Quality, Availability)  | Possible Data Sources -<br>MWI  | Possible Data<br>Sources -<br>NGWA | Possible Data<br>Sources -<br>JVA | PMU<br>Coverage | PMU<br>KPIs            | GTZ -SCWS  |
|---|--|---|--|---|------------------------------------|-----------------------------------|-----------------|------------------------|--|
|   |  |   | scattered and not compiled..   |   | Excel                              |                                   |                 |                        |  |
| Water Quality                               | 1. Water Quality for<br>Selected Resources   | Annual<br><br><u>For JVA</u>                            | Not readily available digitally. Needs<br>regular processing   | WRD & WIS @ MWI and<br>WMIS @ JVA   | LAB                                | WMIS &<br>SCADA.                  | √ ×             | Op32,<br>Op34,<br>Op35 | Again, it seems as if<br>PMU has put a tick<br>wherever they have<br>data – whether they<br>originate with PMU or<br>not |
|   | 2. Treated<br>Wastewater Quality   | Daily,<br>instantaneous,<br>monthly & annual<br>reports | Different sources within WAJ. Data not<br>centralized.   | WAJ Sewerage<br>Department, LIMS and<br>WIS   | LAB                                |                                   | X<br><br>×      |                        |  |
| Non-Conventional<br>Water                   | 1. Treated Waste<br>Water Availability<br>and Re-use<br>(Historical & Future)  | Available Monthly<br>for annual<br>consolidation        | <u>Historical:</u> Different Sources from<br>multiple departments. Lack of data<br>centralization.<br><br>Not available Digitally<br><br><u>Future:</u> Data available but requires<br>regular exchange between WAJ<br>departments and MWI to keep updates on<br>plans | <u>Historical:</u> TWW Quantity<br>@ WAJ Sewerage Dept,<br>and centralized in WIS.<br>Reuse @ WAJ Reuse Unit,<br>but not available digitally. | Excel                              |                                   | ×               |                        |  |
| National Agenda<br>Indicators               | Compliance with<br>National Agenda<br>Indicators   | Annual  | Information not disseminated   | Prime Ministry  |                                    |                                   | ×               |                        |  |
| <u>For JVA</u><br>Water Resources<br>& Dams | Permanent flow,<br>flooding of rivers,<br>water quantities<br>stored, leaked &<br>evaporated from<br>dams, levels of dams. | Instantaneous,<br>daily, monthly &<br>annual reports.   |  |   |                                    | WMIS &<br>SCADA                   |                 |                        |  |

## 2-2 Capital Investment

| Information Need            | Information Need Detail   | Frequency                      | Current Issues<br>(Timeliness, Quality,<br>Availability)  | Possible Data Sources -<br>MWI   | Possible<br>Data<br>Sources -<br>NGWA | PMU<br>Coverage | PMU<br>KPIs | GTZ -SCWS  |
|-----------------------------|---|--------------------------------|---|--|---------------------------------------|-----------------|-------------|--|
| Capital Investments         | 1. Required and actual Investment cost, by project & year, Yield of water, allocation by sector,  | Monthly &<br>Annual, ad-hoc    | Summary information only produced on demand basis, lack of centralization, time consuming involving review of scattered information within and inter departments.   | Investment Plan electronic file, Projects departments at MWI, WAJ and JVA.         | Accpac, Excel, External Auditors      | ×               |             |  |
|                             | 2. % fulfillment of planned investment (by project & overall plan)  |                                |   | Projects departments at MWI, WAJ and JVA   | Accpac, Excel                         | ×               |             |  |
|                             | 3. Compliance with regional agreements & protocols  |                                |   | Projects Coordinators or Managers  | Accpac, Excel                         | ×               |             |  |
|                             | 4. Conformity of Investment Plan and actual implementation with National Water Master Plan Recommendation (including allocations per sector)  |                                | Information not yet available   | Investment Plan electronic file, Projects departments at MWI, WAJ and JVA and NWMP |                                       | ×               |             |  |
|                             | 5. Contribution to National Agenda  |                                | Not available   | National Agenda, Investment Plan and actual implementation                         | Excel                                 | ×               |             | The points 3-5 would be factors flowing into the project ranking mechanism developed by SCWS |
| Capital Investment Projects | List of Projects by agency & sector (Domestic, Waste water, Irrigation). Information includes <b>planned and actual</b> yield, Capital Costs, Recurring Costs, implementation schedule, Project Status, funding sources, donors' contribution and contribution items, respective Internal Rate of Return and project rank, with cross cutting issues and obstacles. | Monthly &<br>Annual and ad-hoc | Not Available centrally or in summary sheets. Project Ranking still not available, proposal by SCWS available. Changes to Investment Plan are only produced on a demand basis. Information is scattered, time consuming involving many sources. | SG's , and Projects departments at MWI, WAJ and JVA. Projects Data base is needed. | Excel                                 | ×               |             | Will be delivered by SCWS  |

### 3-2- Projects & Utilities Performance

Executives & decision makers need to monitor Projects with significant impact on Water sector strategy, policies & trends.

| Information Need             | Information Need Detail  | Frequency   | Current Issues<br>(Timeliness, Quality, Availability)  | Possible Data Sources-<br>MWI  | Possible Data Sources-<br>NGWA | PMU Coverage | PMU KPIs | GTZ -SCWS  |
|------------------------------|--|---|--|--|--------------------------------|--------------|----------|--|
| <b>Projects Performance</b>  | 1. Projects Implementation Status by Agency and sector, including funds disbursed by sources, finance type, budget and actual payments, planned and actual start & end date, (planned & actual), source of funds, incl. Obstacles. | Monthly & Annual<br><br><b>For JVA</b><br><b>Monthly, Annual &amp; ad-hoc</b> | Projects are scattered. Responsible personnel not known. Information not centralized and not digital. If systems are available, they are not compatible and or not even known..  | Projects departments at MWI, WAJ and JVA. Projects Data base is needed | Excel                          | ×            |          | The yellow parts have some overlapping information, this should be streamlined<br><br>To the understanding of SCWS, this is a different tool than the one needed for monitoring at MWI |
| <b>Utilities Performance</b> | Technical/Operational Information by utility<br>Financial Information by utility<br>Administrative Information   | Monthly, Annually and ad-hoc  | Information systems types in utilities such as billing are not unified resulting in variation in reporting functions, lack of standardized concepts & definitions such as concept for measurement of NRW, inaccurate information from water administrations and utilities. Unavailability of information in some cases | PMU, Auditors (EU, USAID), Private Operators including NGWA            | Excel                          | ×            |          | PMU has proposed a common concept, for NRW measurement, needs to be enforced.  |
|                              | Compliance of Water Utilities Performance with PMU Indicators  |   |  |  | Excel                          | ×            |          | PMU should have that?  |

## 4-2 Financial

| Information Need | Information Need Detail  | Frequency                                   | Current Issues<br>(Timeliness, Quality, Availability)   | Possible Data Sources<br>- MWI                         | Possible Data Sources-<br>NGWA | PMU Coverage | PMU KPIs | GTZ_SCWS |
|------------------|--|---|---|--|--------------------------------|--------------|----------|----------|
| Financial        | 1. Yearly Planned vs. Actual budget & actual spending per cost center and by agency including historical information | Monthly, Annual<br>Ad hoc                   | Not centralized, available on demand only. FAS not used in JVA. In WAJ data is not readily available, due to limited skills to generate reports and lack of management follow up and enforcement of use of FAS. | Financial Departments @ MWI, WAJ incl. NGWA & JVA. FAS | Excel                          | ×            |          |          |
|                  | 2. Yearly Revenue, Expenses, % deficit, by agency including historical information.                                  | Monthly, Annual<br>Ad hoc                   |   |  | Accpac, External Auditors      | ✓            | Fic01    |          |
|                  | 3. Operations cost recovery, by cost center and agency including historical information                              | Monthly, Annual<br>Ad hoc                   |   |  | Accpac                         | ✓            | Fic03    |          |
|                  | 4. Tariffs including historical information (meeting donors milestones KPI)  | Annual or whenever changes to tariff occurs |   |  | COBOSII                        | ×            |          |          |
|                  | 5. Financial sustainability of the sector (Annual capital cost, Annual O&M cost, Revenues & % Cost Recovery)         | Monthly, Annual or Ad-hoc                   |   |  | Accpa,Ext ernal Auditors       | ✓ ×          | ?        |          |
|                  | Compliance with National Agenda financial indicators   | Annual                                      | National Agenda Information not disseminated  | Prime Ministry   |                                | ×            |          |          |



## 5-2 Operations & Maintenance

| Information Need    | Information Need Detail   | Frequency               | Current Issues<br>(Timeliness, Quality, Availability)  | Possible Data Sources -<br>MWI                          | Possible<br>Data<br>Sources -<br>NGWA | PMU<br>Coverage | PMU<br>KPIs              | GTZ-SCWS |
|---------------------|---|-------------------------|--|---|---------------------------------------|-----------------|--------------------------|----------|
| Plants Operations   | 1. Operations Efficiency: Water billed to customers/Water released  | Monthly, Annual, Ad-hoc |  |   | Excel                                 | ×               |                          |          |
|                     | 2. Comparison of Selected Operational Parameters with Design (Ex: Actual Hydraulic and Pollution loads into Wastewater Treatment Plants compared with design) |                         |  |   | Excel                                 | ×               |                          |          |
|                     | 4. List of water and wastewater (Plants/facilities/infrastructure) upgrade requirements, planned and actual implementation                                    |                         |  |   | Excel                                 | ×               |                          |          |
| Customer Management | 1. Major areas of customer complaints per Service Area.   | Monthly, Annual, Ad-hoc | Data not centralized. Lack of unified information system. Availability on demand. Not all data might be available. | Call centers<br>Subscription WAJ<br>JVA repair workshop | MMS                                   | √               | ?                        |          |
|                     | 2. Time needed to resolve a customer complaint.   |                         |  |   | MMS                                   | √               | QS22,<br>QS25,<br>QS27   |          |
|                     | 3. # Of Subscription and Applications?  |                         |  |   | Excel                                 | √               | QS20                     |          |
|                     | 4. Application Processing duration  |                         |  |   | Excel                                 | √               | QS20                     |          |
|                     | 5. % of Subscribers with identified addresses.  |                         |  |   | GIS                                   | √               |                          |          |
| Network Efficiency  | 1. Broken Equipment by agency   |                         |  |   | MMS                                   | √               | Opc09,<br>Opc07,<br>Op27 |          |
|                     | 2. Mean Time to Repair by agency  |                         |  |   | MMS                                   | √               | Opc08                    |          |
|                     | 3. Water and wastewater Upgrades projects by agency, and schedule   |                         |  |   |                                       | √               |                          |          |
| Energy Consumption  | Energy Consumption per cost center  |                         |  |   |                                       | √               | Fi07                     |          |

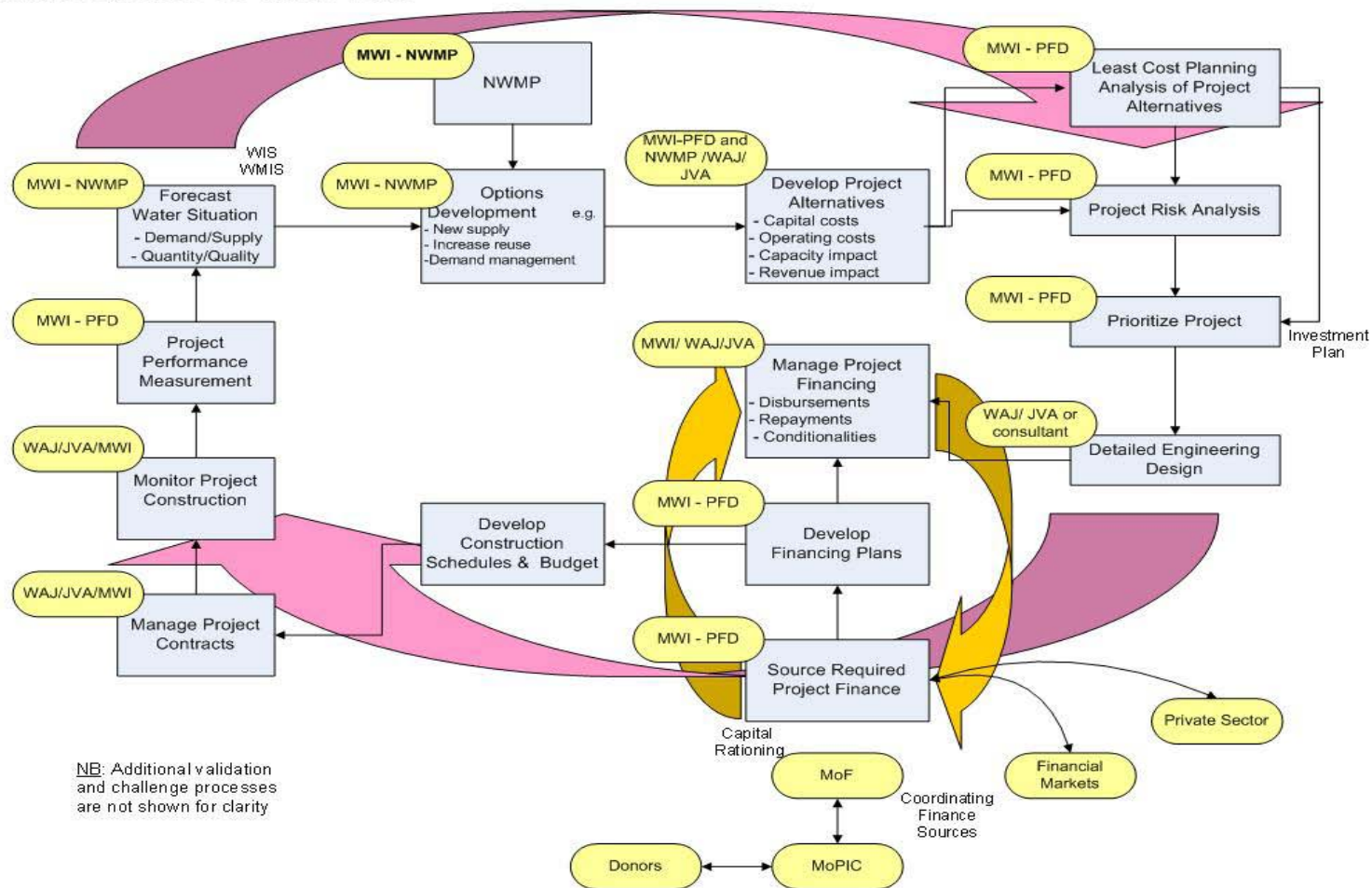
## 6-2 Administrative & Legal

| Information Need                   | Information Need Detail   | Frequency               | Current Issues<br>(Timeliness, Quality, Availability) | Possible Data Sources -<br>MWI   | Possible<br>Data<br>sources-<br>NGWA | PMU<br>Coverage | PMU<br>KPIs              | GTZ-SCWS |
|------------------------------------|---|-------------------------|---|--|--------------------------------------|-----------------|--------------------------|----------|
| <b>Human Resources<sup>3</sup></b> | 1. Staff/Domestic Connection  | Monthly, Annual, Ad-hoc | Not available   | HR Departments in the three agencies<br><br>For JVA:<br>HR database (oracle) |                                      | ✓               | Pec01/<br>Pec02          |          |
|                                    | 2. Gaps in qualified staff /level by Agency                                 |                         |   |  | HRIS                                 | ✓               | Pe13                     |          |
|                                    | 3. Fulfillment of manpower plan to objectives by Agency (capacity building) |                         |   |  | Excel                                | ✓               | Pe16                     |          |
|                                    | 4. Turnover & retention plans (meeting donors milestones)                   |                         |   |  | HRIS, Excel                          | ✗               |                          |          |
|                                    | 5. # of employees by skill level, and qualifications                        |                         |   |  | HRIS, Excel                          | ✓               | Pe13, Pec14, Pe15, Pec15 |          |
|                                    | 6. # of employees by age, salary, for each level                            |                         |   |  | HRIS, Payroll                        | ✗               |                          |          |
|                                    | 7.Total Number of Employees (Historical)                                    |                         |   |  |                                      | ✓               |                          |          |
| <b>Legal Affairs</b>               | 1. List of Major legal cases, and status.                                   | Monthly, Annual, Ad-hoc |   |  |                                      | ✗               |                          |          |
|                                    | 2. Compliance of laws and by-laws with sector strategy                      |                         |   |  |                                      | ✗               |                          |          |

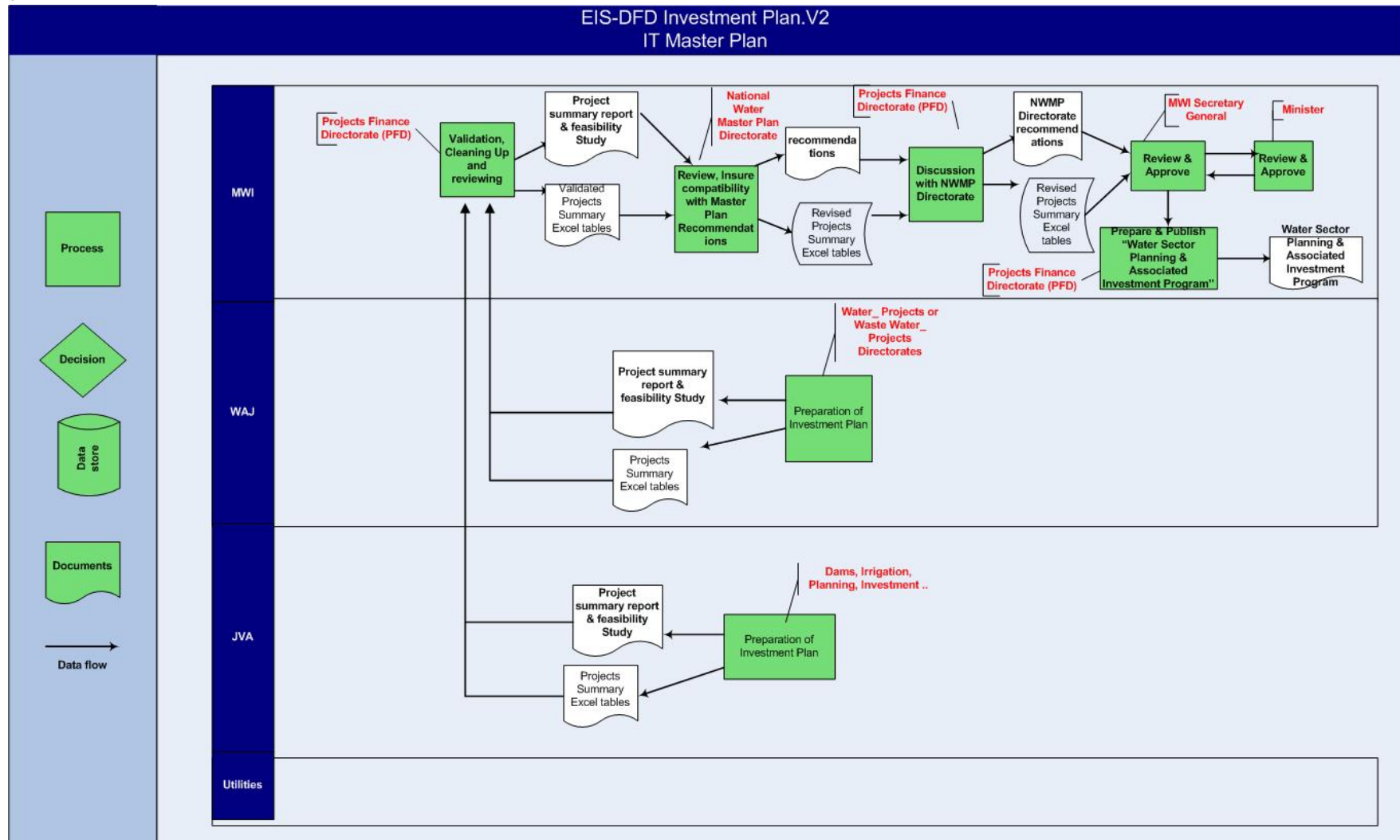
<sup>3</sup> JVA listed 2 requirements: Training Catalogue, and Laws and Bylaws Instruction. However, those are not EIS requirements, rather should be included in the Knowledge management system or the portal.

## EIS-CAPITAL INVESTMENT-DIAGRAMS

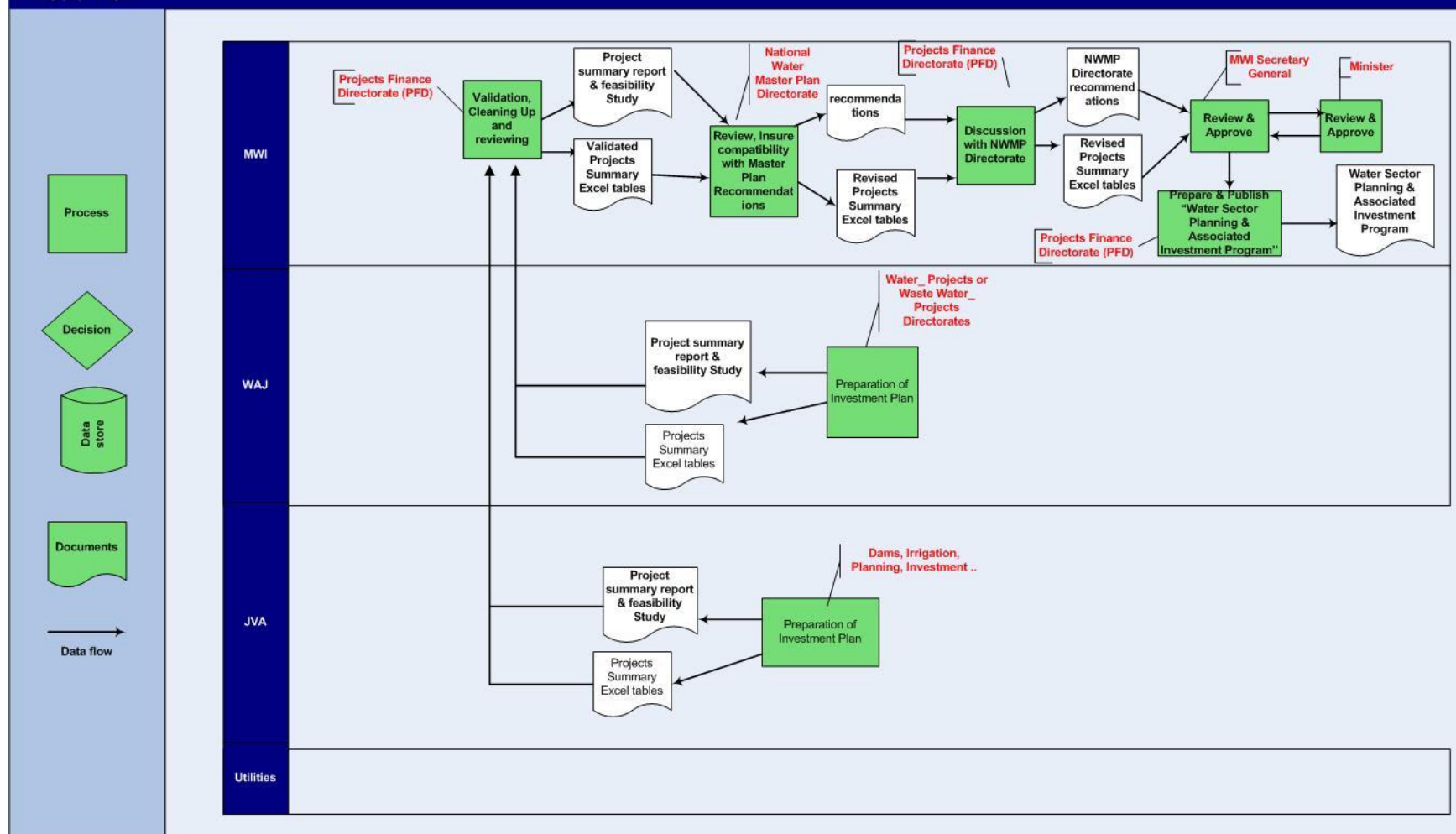
### Capital Investment To- Be Vision - Draft

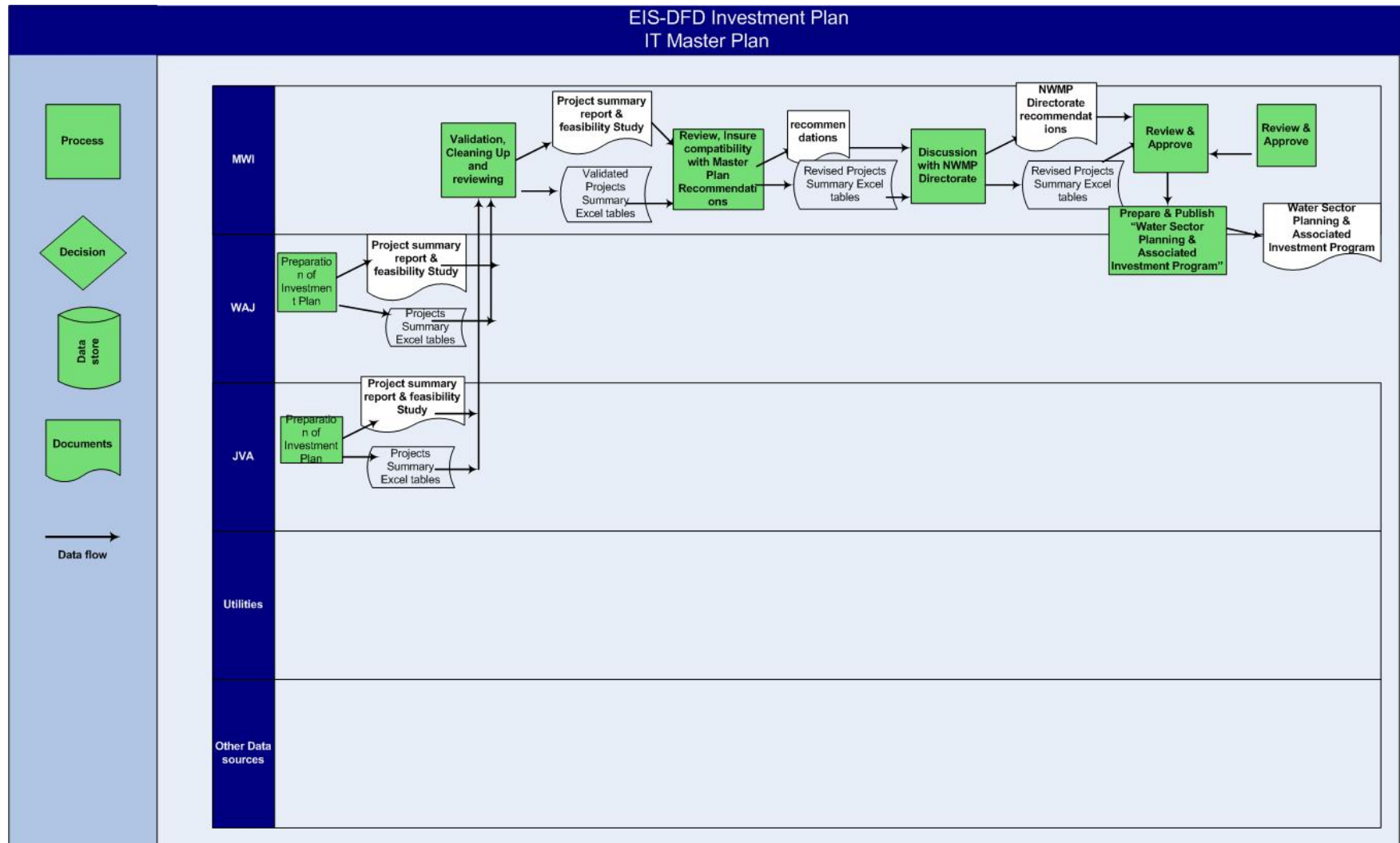


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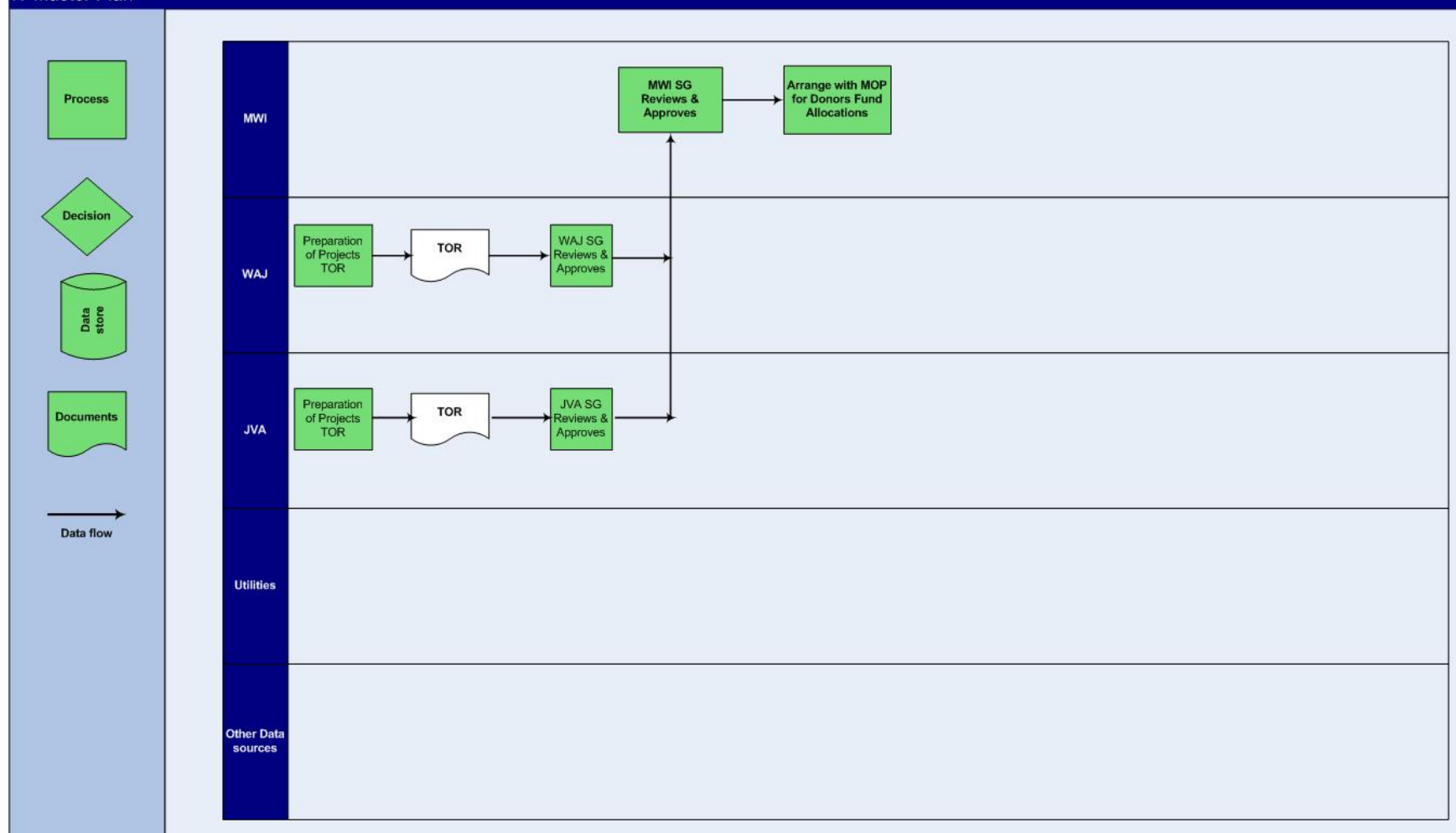


Process Name: Investment Plan Preparation.V3  
IT Master Plan

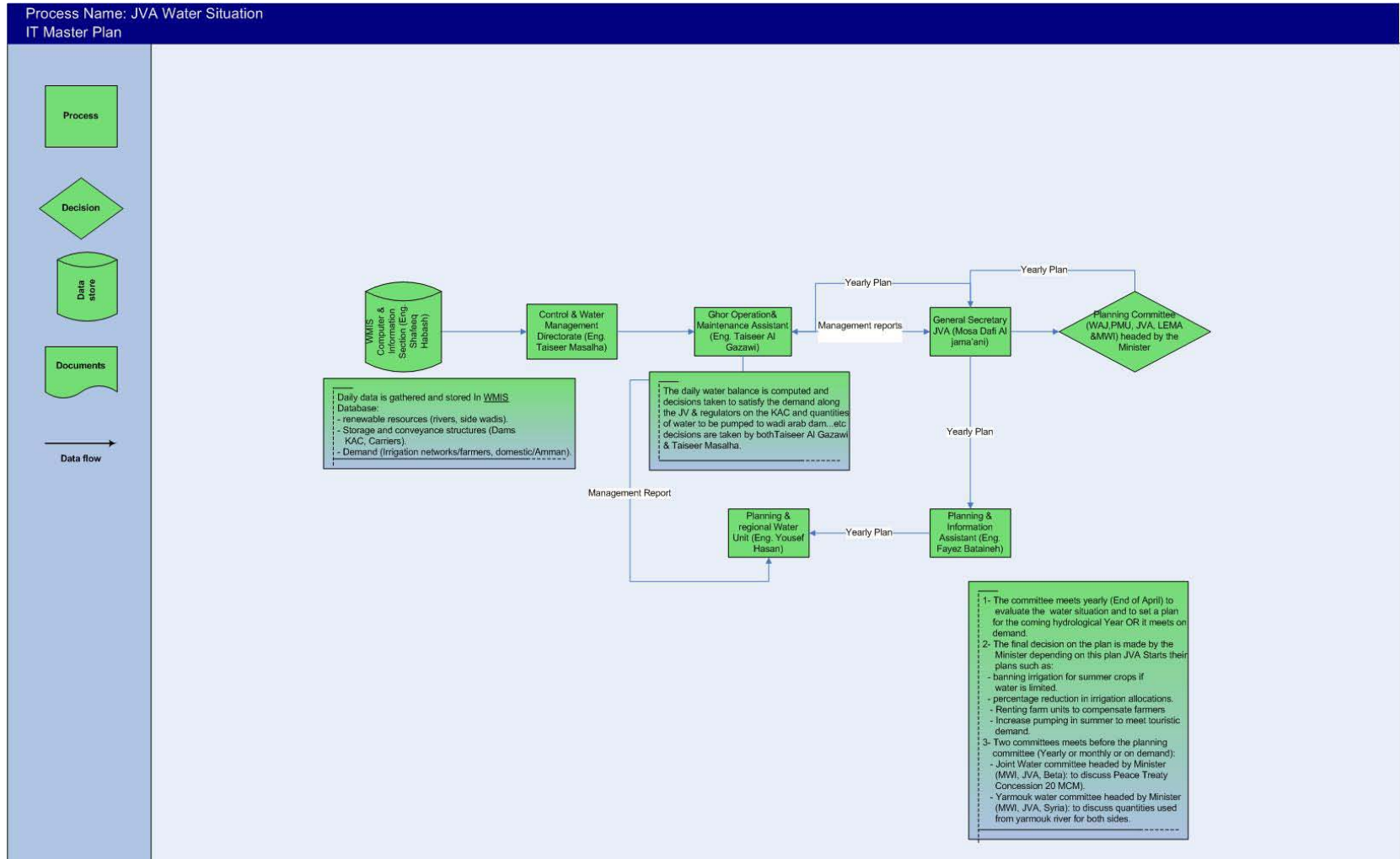




Process Name: Allocating Funds for Project Investments during the year  
IT Master Plan

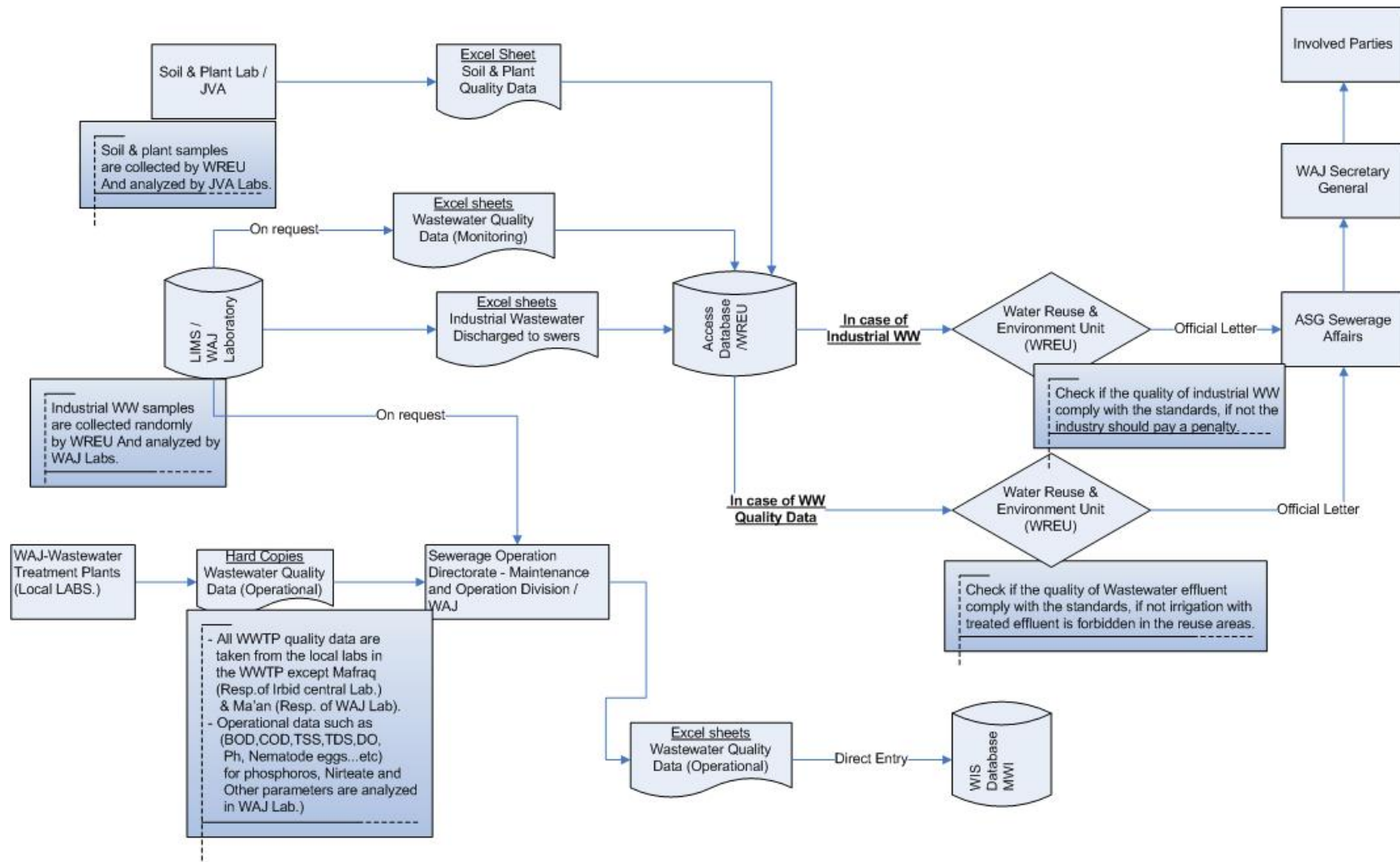


## EIS-WATER SITUATION-DIAGRAMS

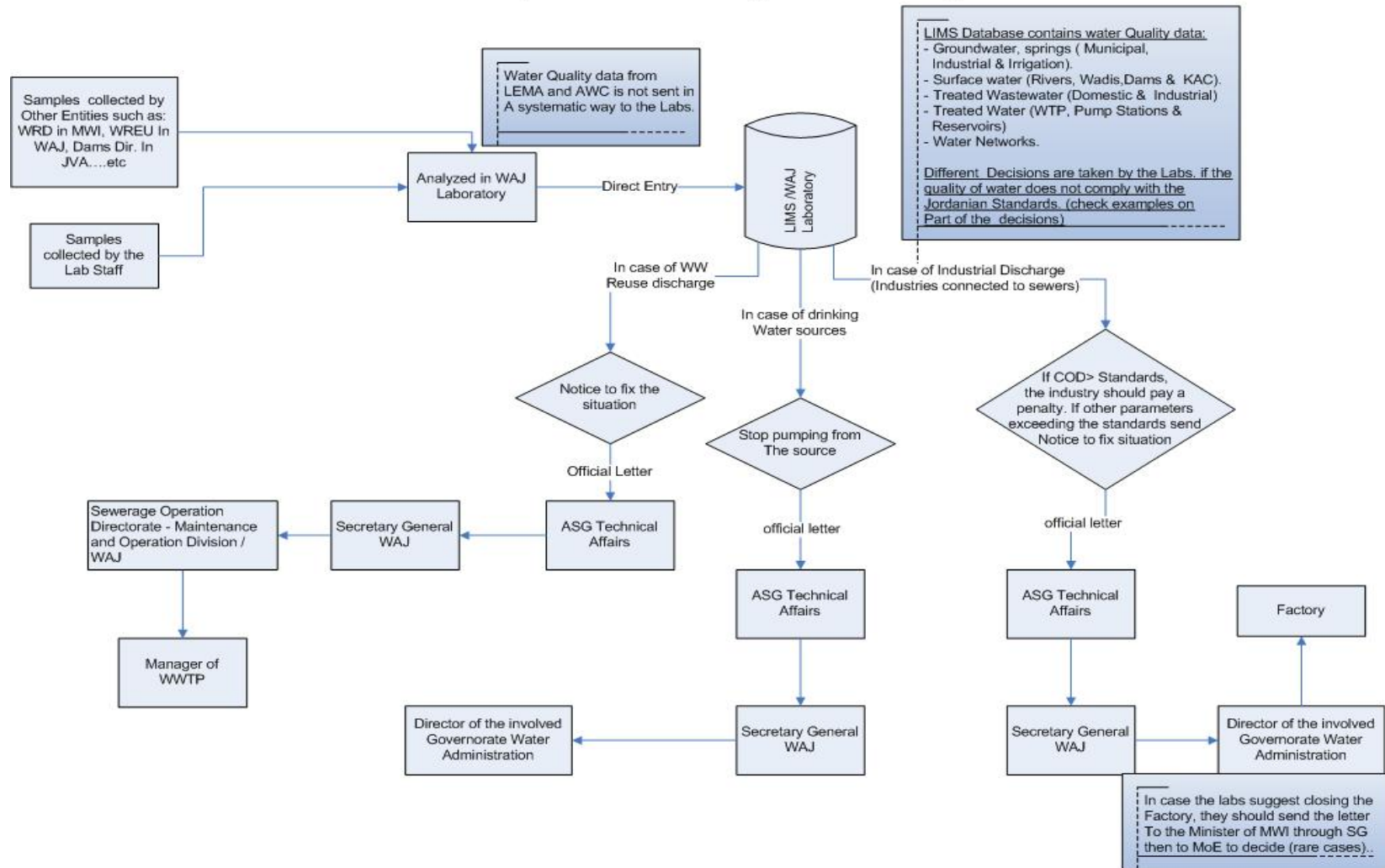


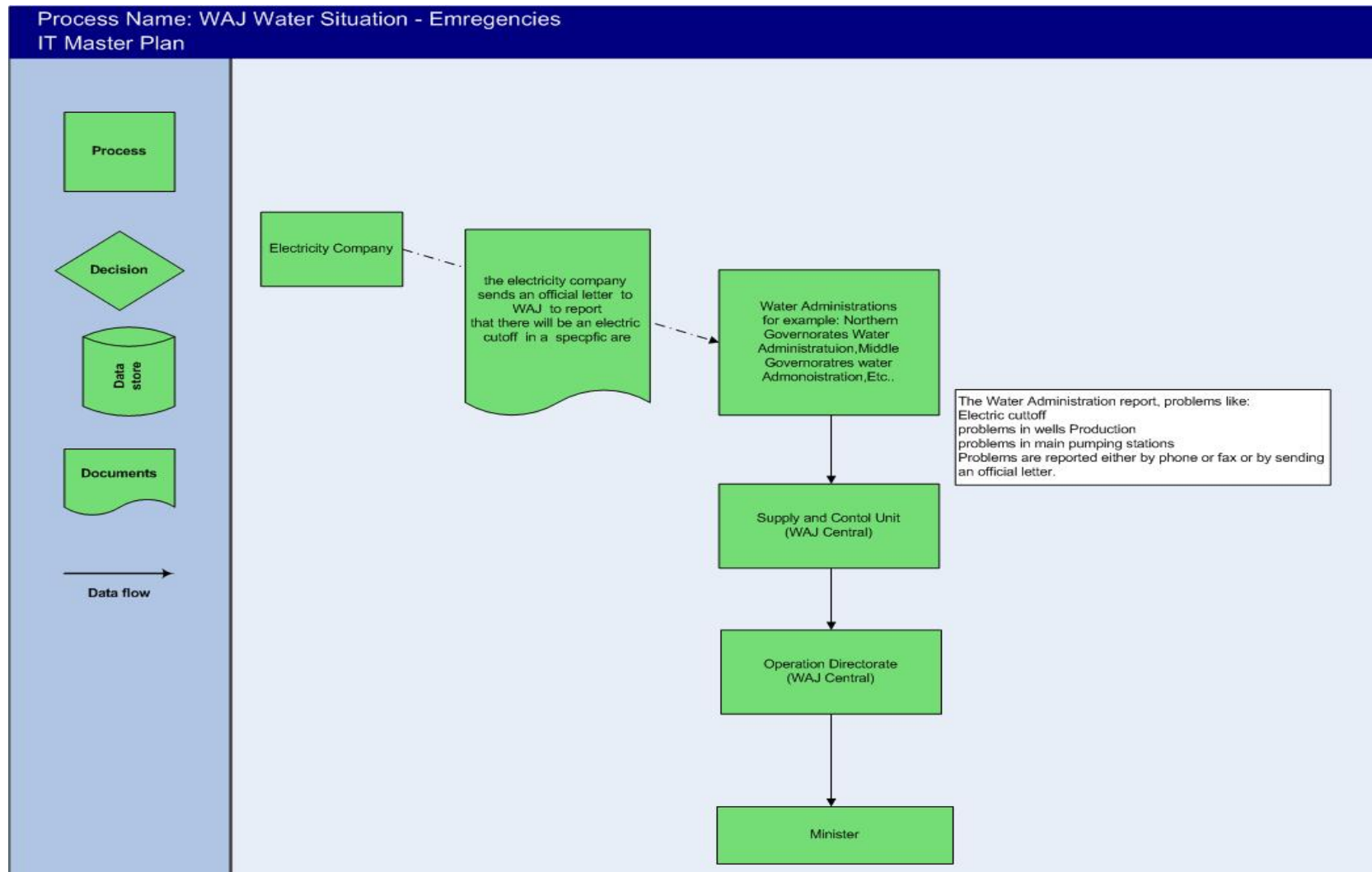


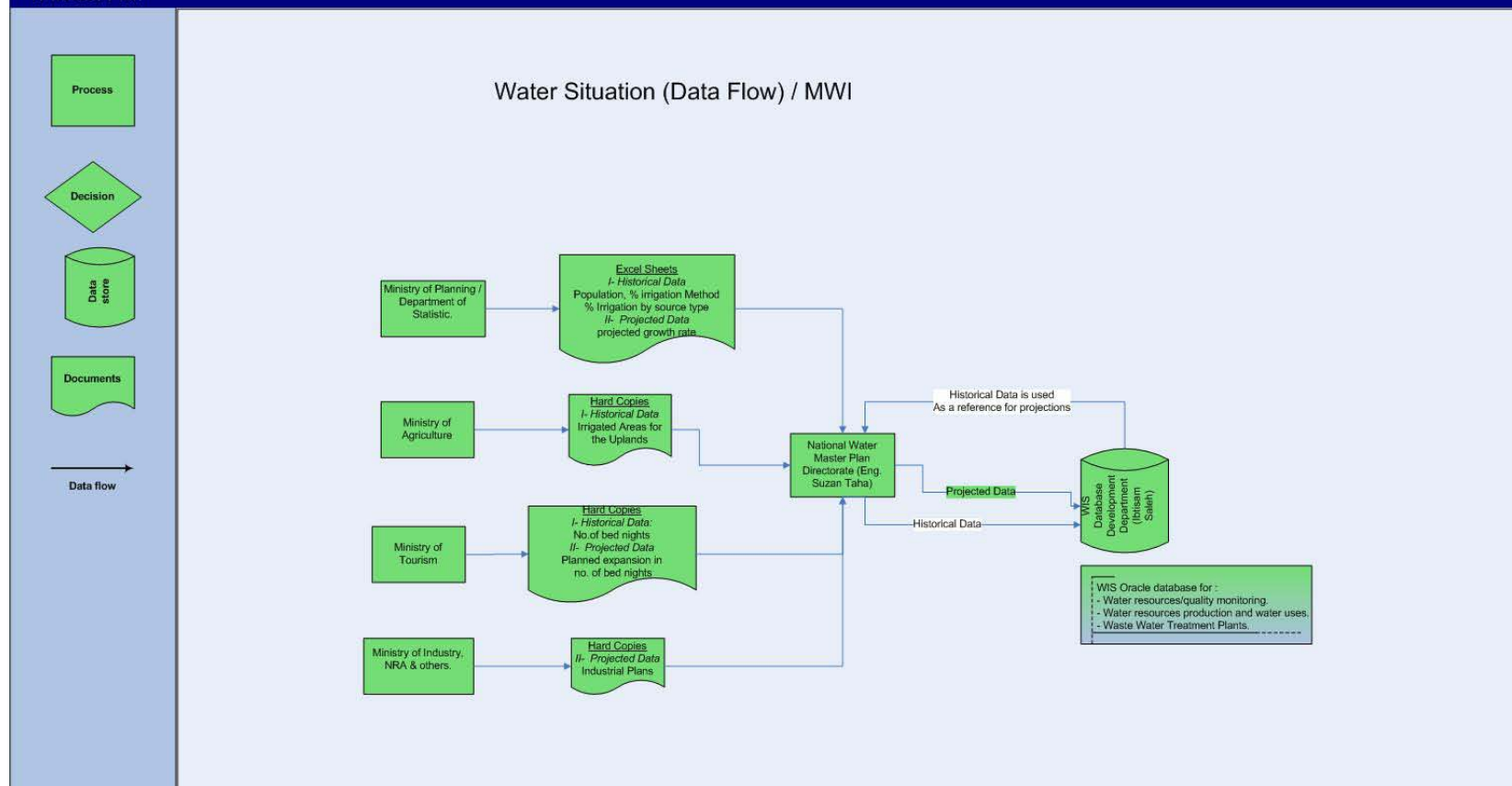
## Water Situation (Decision Making & Data Flow) / WAJ

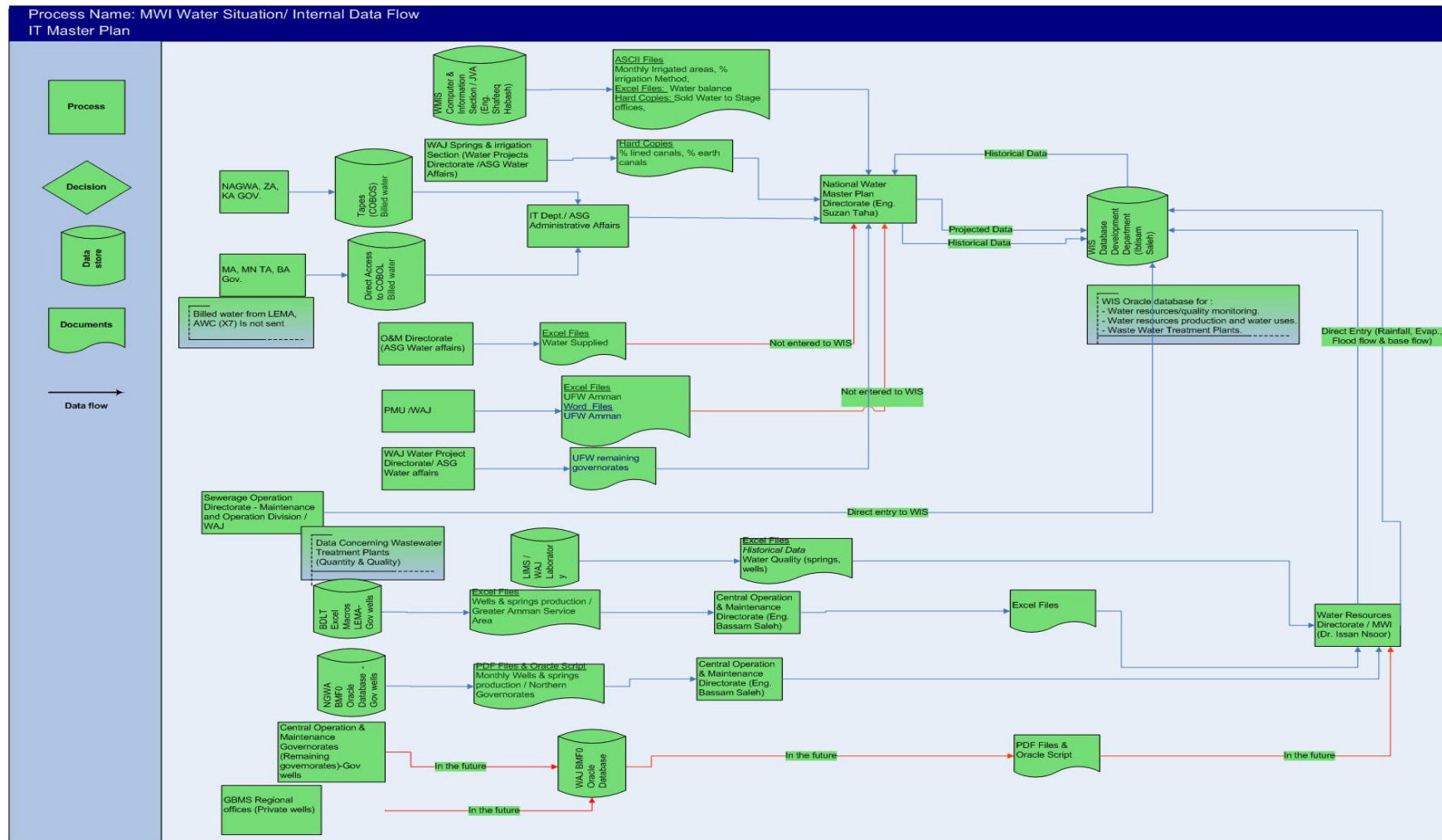


## Water Situation (Decision Making & Data Flow) / WAJ Lab









## EIS-FINANCE-DIAGRAM

